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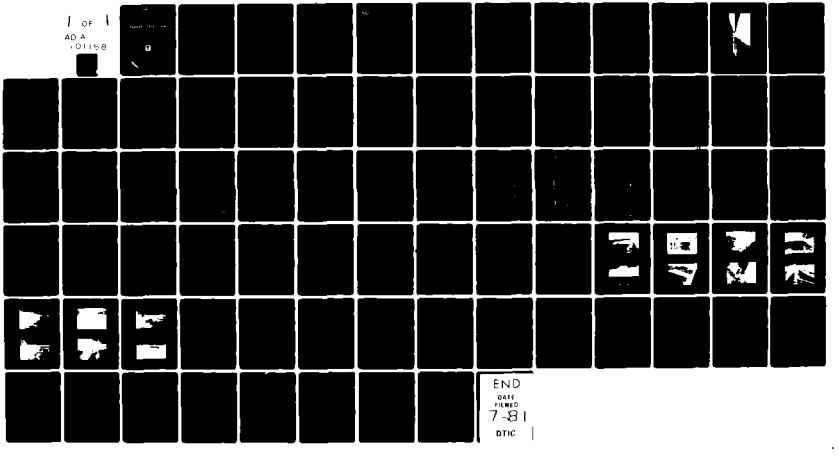

LEVEL II

AD A101158

ATLANTIC COASTAL BASIN
NORTH BRANCH OF FORKED RIVER
OCEAN COUNTY
NEW JERSEY

PARKER STREET DAM

NJ 00055

JUL 9 1981

PHASE 1 INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

DACW61-79-C-0011

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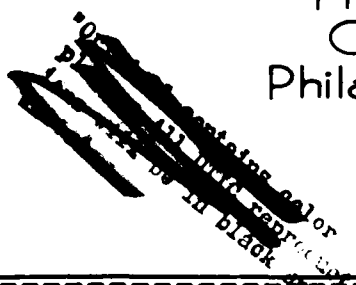

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18. SUPPLEMENTARY NOTES

Copies are obtainable from National Technical Information Service, Springfield, Virginia 22151.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Dams	National Dam Safety Program
Embankments	Parker Street Dam, NJ
Visual Inspection	Spillways
Structural Analysis	Embankments

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report cites results of a technical investigation as to the dam's adequacy. The inspection and evaluation of the dam is as prescribed by the National Dam Inspection Act, Public Law 92-367. The technical investigation includes visual inspection, review of available design and construction records, and preliminary structural and hydraulic and hydrologic calculations, as applicable. An assessment of the dam's general condition is included in the report.

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DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
CUSTOM HOUSE—2 D & CHESTNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106

IN REPLY REFER TO
NAPEN-N

15 JUN 1981

Honorable Brendan T. Byrne
Governor of New Jersey
Trenton, New Jersey 08621

SBT JUL 9 1981

Dear Governor Byrne:

Inclosed is the Phase I Inspection Report for Parker Street Dam in Ocean County, New Jersey which has been prepared under authorization of the Dam Inspection Act, Public Law 92-367. A brief assessment of the dam's condition is given in the front of the report.

Based on visual inspection, available records, calculations and past operational performance, Parker Street Dam, a high hazard potential structure, is judged to be in good overall condition. The dam's spillway is considered inadequate because a flow equivalent to 17 percent of the Spillway Design Flood - SDF - would cause the dam to be overtopped. (The SDF, in this instance, is one half of the Probable Maximum Flood). The decision to consider the spillway "inadequate" instead of "seriously inadequate" is based on the determination that dam failure resulting from overtopping would not significantly increase the hazard to loss of life downstream from the dam from that which would exist just before overtopping failure. To ensure adequacy of the structure, the following actions, as a minimum, are recommended:

a. The spillway's adequacy should be determined by a qualified professional consultant engaged by the owner using more sophisticated methods, procedures and studies within twelve months from the date of approval of this report. Within three months of the consultant's findings remedial measures to ensure spillway adequacy should be initiated.

b. Within twelve months from the date of approval of this report, the following remedial actions should be completed:

(1) Fill in the eroded areas on the embankment with appropriate material.

(2) Repair the timber retaining wall on the upstream slope at the left side of the spillway.

(3) Replace the deteriorated sections of the 12-inch CMP and provide a concrete headwall and apron at the outlet end.

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(4) Conduct a complete topographic survey of the dam and surrounding area in order to develop a detailed plan and several cross-sections of the dam. Annotate and update the existing drawings to form a coherent as-built set.

c. The owner should develop an emergency action plan (if one is not already available) outlining actions to be taken by the operator to minimize downstream effects of an emergency and establish a flood warning system for the downstream communities within three months from the date of approval of this report.

The owner should develop written operating procedures and a periodic maintenance plan to ensure the safety of the dam within one year from the date of approval of this report.

A copy of the report is being furnished to Mr. Dirk C. Hofman, New Jersey Department of Environmental Protection, the designated State Office contact for this program. Within five days of the date of this letter, a copy will also be sent to Congressman Hughes of the Second District. Under the provision of the Freedom of Information Act, the inspection report will be subject to release by this office, upon request, five days after the date of this letter.

Additional copies of this report may be obtained from the National Technical Information Services (NTIS), Springfield, Virginia 22161 at a reasonable cost. Please allow four to six weeks from the date of this letter for NTIS to have copies of the report available.

An important aspect of the Dam Inspection Program will be the implementation of the recommendations made as a result of the inspection. We accordingly request that we be advised of proposed actions taken by the State to implement our recommendations.

Sincerely,

JAMES G. TON
Colonel, Corps of Engineers
Commander and District Engineer

1 Incl
As stated

Copies furnished:
Mr. Dirk C. Hofman, P.E., Deputy Director
Division of Water Resources
N.J. Dept. of Environmental Protection
P.O. Box CN029
Trenton, NJ 08625

Mr. John O'Dowd, Acting Chief
Bureau of Flood Plain Regulation
Division of Water Resources
N.J. Dept. of Environmental Protection
P.O. Box CN029
Trenton, NJ 08625

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PARKER STREET DAM (NJ00055)

CORPS OF ENGINEERS ASSESSMENT OF GENERAL CONDITIONS

This dam was inspected on 14 January and 15 February 1981 by Harris-ECI and Associates, under contract to the State of New Jersey. The State, under agreement with the U.S. Army Engineer District, Philadelphia, had this inspection performed in accordance with the National Dam Inspection Act, Public Law 92-367.

Parker Street Dam, a high hazard potential structure, is judged to be in good overall condition. The dam's spillway is considered inadequate because a flow equivalent to 17 percent of the Spillway Design Flood - SDF - would cause the dam to be overtopped. (The SDF, in this instance, is one half of the Probable Maximum Flood). The decision to consider the spillway "inadequate" instead of "seriously inadequate" is based on the determination that dam failure resulting from overtopping would not significantly increase the hazard to loss of life downstream from the dam from that which would exist just before overtopping failure. To ensure adequacy of the structure, the following actions, as a minimum, are recommended:

a. The spillway's adequacy should be determined by a qualified professional consultant engaged by the owner using more sophisticated methods, procedures and studies within twelve months from the date of approval of this report. Within three months of the consultant's findings remedial measures to ensure spillway adequacy should be initiated.

b. Within twelve months from the date of approval of this report, the following remedial actions should be completed:

(1) Fill in the eroded areas on the embankment with appropriate material.

(2) Repair the timber retaining wall on the upstream slope at the left side of the spillway.

(3) Replace the deteriorated sections of the 12-inch CMP and provide a concrete headwall and apron at the outlet end.

(4) Conduct a complete topographic survey of the dam and surrounding area in order to develop a detailed plan and several cross-sections of the dam. Annotate and update the existing drawings to form a coherent as-built set.

c. The owner should develop an emergency action plan (if one is not already available) outlining actions to be taken by the operator to minimize downstream effects of an emergency and establish a flood warning system for the downstream communities within three months from the date of approval of this report.

The owner should develop written operating procedures and a periodic maintenance plan to ensure the safety of the dam within one year from the date of approval of this report.

APPROVED: James G. Ton

JAMES G. TON
Colonel, Corps of Engineers
Commander and District Engineer

DATE: 15 June 1981

ATLANTIC COASTAL BASIN

NORTH BRANCH OF FORKED RIVER, OCEAN COUNTY

NEW JERSEY

PARKER STREET DAM

NJ00055

PHASE I INSPECTION REPORT

NATIONAL DAM SAFETY PROGRAM

DEPARTMENT OF THE ARMY

PHILADELPHIA DISTRICT, CORPS OF ENGINEERS

PHILADELPHIA, PENNSYLVANIA 19106

MAY, 1981

PHASE I INSPECTION REPORT

NATIONAL DAM SAFETY PROGRAM

Name:	Parker Street Dam, I.D. NJ 00055
State Located:	New Jersey
County Located:	Ocean County
Stream:	North Branch Forked River
River Basin:	Atlantic Coastal Basin
Date of Inspection:	January 14 and February 15, 1981

Assessment of General Conditions

Parker Street Dam is an earthfill dam with a paved roadway along the crest. The original embankment has been filled in on the downstream side to form a parking area for those swimming at the lake. There is a timber box spillway located approximately in the center of the dam. The overall condition of the dam is good. There are no signs of distress or instability in the dam. The hazard potential is rated as "high".

Parker Street Dam is considered inadequate in view of its lack of spillway capacity to pass the SDF (1/2 PMF) without overtopping the dam. The spillway is capable of passing a flood equal to 8 percent of the PMF (16 percent of the 1/2 PMF), and is assessed as "inadequate".

At present, the engineering data available is not sufficient to make a definitive statement on the stability of the dam, but based on the findings of the visual inspection, the preliminary assessment of static stability is that it is satisfactory. The following actions are recommended along with a timetable for their completion. All recommended actions should be conducted under the supervision of an Engineer who is experienced in the design, construction and inspection of dams.

1. Carry out a more precise hydrologic and hydraulic analysis of the dam within twelve months, to determine the need and type of mitigating measures necessary. Based on the results of these studies, remedial measures should be instituted. This should include the installation of a tailwater gage.

2. Fill in the eroded areas on the embankment with appropriate material within twelve months.

3. Repair timber retaining wall on upstream slope at the left side of the spillway. This should be done within twelve months.

4. Replace the deteriorated sections of the 12-inch CMP and provide a concrete headwall and apron at the outlet end. This work should be completed within twelve months.

5. The owner should develop an emergency action plan (if one is not already available) outlining actions to be taken by the operator to minimize downstream effects of an emergency and establish a flood warning system for the downstream communities within three months.

Furthermore, while of a less urgent nature, the following additional actions are recommended and should be carried out within twelve months.

1. Conduct a complete topographic survey of the dam and surrounding area, in order to develop a detailed plan and several cross-sections of the dam. Annotate and update the existing drawings, and form a coherent as-built set.

2. The owner should develop within one (1) year after formal approval of the report, written operating procedures and a periodic maintenance plan to insure the safety of the dam.

John P. Talerico, P.E.
HARRIS-ECI ASSOCIATES

Photo taken on February 15, 1981

P A R K E R S T R E E T D A M

View of dam looking to the left. Spillway is visible just to the left of the first telephone pole.

PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of these guidelines may be obtained from the office of the Chief of Engineers, Washington, D.C. 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigation, and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I investigation; however, the investigation intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through continued care and inspection can there be any chance that unsafe conditions be detected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the Spillway Test flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. The test flood provides a measure of relative spillway capacity and serves as an aide in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.

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PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

PARKER STREET DAM, I.D. NJ 00055

SECTION 1

1. PROJECT INFORMATION

1.1 General

a. Authority

The National Dam Inspection Act (Public Law 92-397, 1972) provides for the National Inventory and Inspection Program by the U.S. Army Corps of Engineers. This inspection was made in accordance with this authority under Contract C-FPM No. 35 with the State of New Jersey who, in turn, is contracted to the Philadelphia District of the Corps of Engineers, and was carried out by the engineering firm of Harris-ECI Associates of Woodbridge, New Jersey.

b. Purpose of Inspection

The visual inspection of Parker Street Dam was made on January 14 and February 15, 1981. The purpose of the inspection was to make a general assessment as to the structural integrity and operational adequacy of the dam embankment and its appurtenant structures.

c. Scope of Report

The report summarizes available pertinent data relating to the project; presents a summary of visual observations made during the field inspection; presents an evaluation of hydrologic and hydraulic conditions at the site; presents an evaluation as to the structural adequacy of the various project features; and assesses the general condition of the dam with respect to safety.

1.2 Description of Project

a. Description of Dam and Appurtenances

Parker Street Dam is an earthfill dam approximately 1100 feet long and 10 feet high with a paved roadway along its crest. There is a 20 foot x 30 foot timber box spillway located approximately in the center of the dam. The crest of the spillway is 3.5 feet below the top of the dam. Over the top of the spillway is a timber dock supported by 12-inch timber pilings. The clear distance from the top of spillway to the bottom of the

dock varies from 2.7 feet at the front to 2.3 feet along the sides. In addition to the spillway, there is a 12-inch corrugated metal pipe, located approximately 120 feet from the right end of the dam, that acts as another spillway. The inlet end of the pipe is located approximately 2.5 feet from the shoreline and rests on the lake bottom. The invert of the pipe is 8 inches lower than the timber box spillway. The flow from the timber box spillway discharges onto a concrete apron that runs under the timber roadway bridge and then into the natural downstream channel. The flow from the 12-inch pipe discharges onto the existing ground approximately 60 feet downstream from the shoreline.

The embankment was supposed to have a design crest width of 30 feet. But since the construction of the dam, the downstream side has been filled in to form a parking area for people using the lake. At the widest point, the width of the crest is approximately 140 feet.

The low-level outlet consists of four foot long timber stop planks located at the front face of the spillway. To remove the stop planks, a person must climb down from the dock to the spillway crest and manually remove the planks.

The downstream channel for the spillway begins at the end of the discharge apron, flows downstream for 25 feet and drops 1.7 feet into the natural channel. From there the channel runs perpendicular to the dam through a wooded and marshy area for approximately 300 feet, then northeast for 100 feet and then southeast passing under U.S. Route 9 through a 7 foot x 21 foot opening approximately 450 feet downstream of the dam. Downstream of U.S. Route 9 is Forked River State Marina. The flow from the 12-inch pipe discharges onto the existing ground and eventually flows into the downstream channel.

A generalized description of the soil conditions is contained in Report No. 8, Ocean County, Engineering Soil Survey of New Jersey by Rutgers University. The report dated 1953 indicates the area of the dam and lake to be a complex intermingling of alluvium, with man-made features, marine tidal marsh and swamp. Geologic Overlay Sheet 33 classifies the underlaying material as beach sand.

b. Location

Parker Street Dam is located on the North Branch of the Forked River, in the Township of Lacey, Ocean County, New Jersey. The dam is accessible from U.S. Route 9 in Forked River by way of Lakeside Drive South to Parker Street.

c. Size Classification

According to the "Recommended Guidelines for Safety Inspection of Dams" by the U.S. Department of the Army, Office of the Chief Engineers, the dam is classified in the dam size category as being "small", since its storage volume of 140 acre-feet is less than 1,000 acre-feet. The dam

is also classified as "small because of its height of 10.3 feet is less than 40 feet. The overall size classification of Parker Street Dam is "small".

d. Hazard Classification

A hazard potential classification of "high" has been assigned to the dam on the basis that 300 feet downstream of the dam the channel parallels heavily traveled U.S. Route 9 for 100 feet before crossing under it and then through the heavily used Forked River State Marina. Therefore eventhough the downstream channel is tidal, a hypothetical failure could occur during periods of low tide and could result in extensive damage to the commericial buildings on Route 9 and to the State Marina. In addition, the possibility exists of the loss of more than a few lives in the event of dam failure.

e. Ownership

Parker Street Dam is owned by:

Lacey Township
Public Works Department
818 W. Lacey Road
Forked River, NJ 08731

Attention: Mr. Robert Albert
Superintendent Public Works
(609) 693-2402

f. Purpose

Parker Street Dam is presently used for recreation purposes only.

g. Design and Construction History

The original construction date for Parker Street Dam is unknown. In 1952 the original spillway failed due to unkown causes. There is no information or record as to whether there was damage downstream, and if so, the extent of the damage is unknown. A permit to reconstruct the dam was issued in May 1953 with the reconstruction completed in July 1954. In reconstructing the spillway, a dock not shown on the plans or approved by the Division of Water Policy and Supply, was constructed over the top of spillway leaving a clear opening between the top of spillway and bottom of dock of only 1.5 feet. The Township officials were directed by the Division to remove the dock as it will interfer with the discharge over the spillway of the flood for which the spillway was approved. Township officials stated the area is used for swimming by children and the dock was constructed for safety reasons. The State indicated if the dock was raised by 1.2 feet, it would be approved. This was completed in the spring of 1955.

h. Normal Operating Procedures

The discharge from the lake is unregulated and allowed to balance the inflow into the lake. The low-level outlet is used to lower the lake level occasionally to allow cleaning of the lake bottom.

1.3 Pertinent Data

a. Drainage Area	15.0 sq. mi.
b. Discharge at Dam Site	
Ungated spillway capacity at elevation of top of dam:	1,513 (10.0 NGVD)
Total spillway capacity at maximum pool elevation (SDF):	9,113 (11.64 NGVD)
c. Elevation (Feet above NGVD)	
Top of dam:	10.0
Maximum pool design surcharge (SDF):	11.64
Recreation pool:	6.50
Spillway crest:	6.50
Streambed at centerline of dam:	-0.3 (Estimated)
Maximum tailwater:	3 (Estimated)
d. Reservoir	
Length of maximum pool:	2,000 (Estimated)
Length of recreation pool:	2,000 (Estimated)
e. Storage (acre-feet)	
Spillway Crest:	36
Top of dam:	140
Maximum pool (SDF):	264
f. Reservoir Surface (acres)	
Top of dam:	46
Maximum pool (SDF):	152.8 (Estimated)
Recreation pool:	16.0
Spillway crest:	16.0 (6.5 NGVD)

g. Dam

Type:	Earthfill with timber box structure spillway.
Length:	1,100 ft. (Effective)
Height:	10.3 ft.
Top width:	Varies 140 feet maximum
Side slopes - Upstream: - Downstream:	6H:1V and Flatter 2H:1V
Zoning:	Unknown
Impervious core:	None
Cutoff:	None
Grout curtain:	None

h. Diversion and Regulating Tunnel

i. Spillway

Type:	Timber box structure.
Length of weir:	70 ft. (Effective)
Crest elevation:	6.5 NGVD
Gates:	None
U/S Channel:	Lower Lake
D/S Channel:	Natural Channel

j. Regulating Outlets

Low level outlet:	4' x 6' opening
Controls:	Removable timber stop planks.
Emergency gate:	None
Outlet:	0.5 NGVD (Estimated)

SECTION 2

2. ENGINEERING DATA

2.1 Design

Drawings for the reconstruction of the Parker Street Dam are available in the files of the N.J. Department of Environmental Protection (NJ-DEP) in Trenton. No embankment data from soil borings, soil tests, design computations, or other geotechnical data are available to assess the stability properly. Data concerning the hydraulic capacity of the present spillway is also available.

2.2 Construction

Data is not available concerning the as-built construction of the dam. No data exists of construction methods, borrow sources or other data pertinent to the construction of the dam.

2.3 Operation

Formal operation records are not kept for the dam and reservoir. The lake is allowed to operate naturally without regulation.

2.4 Evaluation

a. Availability

The availability of engineering data is fair. The stated plans concerning the dam are available from the NJ-DEP.

b. Adequacy

The engineering data available from the plans and from the field was adequate to perform hydrologic and hydraulic computations. The data was insufficient to perform stability analysis, but a preliminary evaluation could be made based on visual observations.

c. Validity

The information contained in the drawings and checked by limited field measurements appears to be valid except the crest width is not 30 feet, but varies to 140 feet maximum.

SECTION 3

3. VISUAL INSPECTION

3.1 Findings

a. General

The visual inspection of Parker Street Dam revealed the dam and spillway to be in good condition. At the time of the inspection the lake level was above the crest of the spillway.

b. Dam

The earth embankment appears to be sound. No surface cracking on the embankment was noted. Some erosion due to rainfall runoff was observed in the parking area. The upstream slope right of the spillway is sand and gravel while the area left of the spillway is sand. The vertical crest alignment is good. The horizontal alignment is very irregular due to the downstream area having been filled in. The paved roadway is in good condition. There are telephone poles along the upstream crest between the road and the beach. There are trees growing on the downstream slope at the left end of the dam, but due to the distance from the upstream crest they present no problem. The timber retaining wall along the upstream slope to the left of the spillway is leaning towards the water. No evidence of burrowing by animals was noticed.

c. Appurtenant Structures

1. Spillways

The timber spillway is in good condition. The timber braces supporting the spillway walls are in good condition. The concrete discharge apron was under water, therefore, it could not be inspected. The horizontal and vertical alignments of the crest appeared good.

2. Bridges and Piers

The timber dock over the spillway and the timber supports are in good condition.

3. Outlet Works

The outlet works for the dam consists of the timber stop planks at the spillway and the 12-inch corrugated metal pipe to the right. The stop planks were under water, therefore, they could not be inspected. The inlet end of the pipe rests on the lake bottom. There is no headwall at the inlet end and the invert of the pipe was 3 inches into the lake

bottom. At the outlet, there are two 12-inch corrugated metal pipes, but only the one on the left had a flow. There is also no headwall at the outlet and the bottom of both pipes have completely rusted out. The upstream end or inlet for the pipe on the right could not be found.

4. Reservoir Area

The side slopes of the reservoir are flat and wooded with houses along the right shoreline. There is an abandoned railroad trestle crossing the lake 1600 feet upstream. There is no indication of slope instability.

5. Downstream Channel

The downstream channel is tidal. There is some debris in the channel near the outlet. The slopes are flat, shallow and heavily wooded. The downstream channel runs perpendicular to the dam for approximately 300 feet until it comes to U.S. Route 9, then it runs northeast paralleling the highway for approximately 100 feet before it crosses under the highway. There are commercial buildings on both sides of the channel on Route 9 and immediately downstream is the Forked River State Marina which is heavily used.

SECTION 4

4. OPERATIONAL PROCEDURES

4.1 Procedures

Parker Street Dam is used to impound water for recreational activities. The level of the lake is maintained through the unregulated flow over the spillway. The lake level is occasionally lowered to clean the lake bottom.

4.2 Maintenance of the Dam

There is no regular inspection and maintenance program for the dam and appurtenant structures. Lacey Township is responsible for the maintenance of the dam.

4.3 Maintenance of Operating Facilities

The low-level outlet operating facilities consist of four foot long timber stop planks that are removed and replaced manually.

4.4 Evaluation

The present operational and maintenance procedures are fair with the dam and spillway being maintained in a serviceable condition.

SECTION 5

5. HYDRAULIC/HYDROLOGIC

5.1 Evaluation of Features

a. Design

The drainage area above Parker Street Dam is approximately 15.0 square miles. A drainage map of the watershed of the dam site is presented on Plate 1, Appendix D.

The topography within the basin is generally moderately sloped. Elevations range from approximately 184 feet above NGVD at the south end of the watershed to about 10 feet at the dam site. Land use patterns within the watershed are mostly woodland and swamp with some residential development around the lake areas.

The evaluation of the hydraulic and hydrologic features of the dam was based on criteria set forth in the Corps guidelines and additional guidance provided by the Philadelphia District, Corps of Engineers. The SDF for the Dam falls in a range of 1/2 PMF to PMF. In this case, the low end of the range, 1/2 PMF, is chosen since the factors used to select size and hazard classification are on the low-side of their respective ranges.

The Probable Maximum Flood (PMF) was calculated from the probable maximum precipitation using Hydrometeorological Report No. 33 with standard reduction factors. The outflow hydrograph from the upstream Deer Head Lake Dam(NJ 00789) was used as the inflow hydrograph without considering the effect of Lake Barnegat Dam (NJ 00058) as per guidance from the Philadelphia District, Corps of Engineers.

Initial and constant infiltration loss rates were applied to the Probable Maximum Precipitation to obtain rainfall excesses. The rainfall excesses were applied to the unit hydrograph to obtain the PMF and various ratios of PMF utilizing program HEC-1-DB.

The SDF peak outflow calculated for the dam is 9,113 cfs. This value is derived from the half PMF, and results in overtopping of the dam, assuming that the lake was originally at the spillway crest elevation.

The stage-outflow relation for the spillway was determined from the geometry of the spillway and dam, utilizing HEC-1 Dam Safety Version program.

The reservoir stage-storage capacity relationship was computed directly by the conic method, utilizing the HEC-1-DB program. The reservoir surface areas at various elevations were measured by planimeter from a U.S.G.S Quadrangle topographic map. Reservoir storage capacity included surcharge levels exceeding the top of the dam, and the spillway rating curve was based

on the assumption that the dam remains intact during routing. The spillway rating curve is presented in the Hydrologic Computation, Appendix C.

Drawdown calculations indicate that to empty the lake to an elevation of 2.0 NGVD through the one low-level outlet would take 3 hours assuming a 2 cfs/square mile inflow and no tidal effect on the downstream channel.

b. Experience Data

No records of reservoir stage or spillway discharge are maintained for this site.

c. Visual Observation

The downstream channel is in good condition. The slopes are flat, shallow and heavily wooded. The channel crosses under U.S. Route 9 approximately 450 feet downstream. There are commercial buildings on both sides of the channel on Route 9 and immediately downstream is the Forked River State Marina.

The side slopes of the reservoir are flat and do not exhibit signs of instability. The draiange area is wooded and moderately sloped.

d. Overtopping Potential

A storm of magnitude equivalent to the SDF would cause overtopping of the dam to a height of 1.64 feet. Computations indicate that the dam can pass approximately 8 percent of the PMF without overtopping the dam crest. Since the 1/2 PMF is the Spillway Design Flood (SDF) for this dam, according to the Recommended Guidelines for Safety Inspection of Dams by the Corps of Engineers, the spillway capacity of the dam is assessed as "inadequate".

SECTION 6

6. STRUCTURAL STABILITY

6.1 Evaluation of Structural Stability

a. Visual Observations

There are no signs of distress in the embankment of the Parker Street Dam. The trees growing on the downstream slope are far enough away from the crest as to not pose a problem to stability. The spillway, timber dock and supports are in good condition.

b. Design and Construction Data

No design computations relating to stability were uncovered during the report preparation phase. No embankment or foundation soil parameters are available for carrying out a conventional stability analysis of the embankment.

c. Operating Records

No operating records are available relating to the stability of the dam.

d. Post-Construction Changes

There are no known post-construction changes since the dam was rebuilt in 1954.

e. Static Stability

A static stability analysis was not performed for Parker Street Dam because the lack of data on which to base assumptions of material properties within embankment zones might produce misleading results, but based on the findings of the visual inspection, the preliminary assessment of static stability is that it is satisfactory.

f. Seismic Stability

The dam is located in Seismic Zone 1, as defined in Recommended Guidelines for Safety Inspection of Dams, prepared by the Corps of Engineers. In general, projects located in Seismic Zones 0, 1 and 2 may be assumed to present no hazard from earthquake, provided the static stability conditions are satisfactory and conventional safety margins exist, and based on the findings of the visual inspection, the preliminary assessment of the static and seismic stabilities is that they are satisfactory.

SECTION 7

7. ASSESSMENT/REMEDIAL MEASURES

7.1 Dam Assessment

a. Safety

The dam has been inspected visually and a review has been made of the available engineering data. This assessment is subject to the limitations inherent in the visual inspection procedures stipulated by the Corps of Engineers for a Phase 1 report.

Parker Street Dam is inadequate because the dam does not have the spillway capacity to pass the SDF, one half of the PMF, without overtopping. Overtopping of the dam carries with it the danger of a possible failure of the dam. The present spillway capacity of the dam is approximately 8 percent of the PMF.

No definitive statement pertaining to the safety of the embankment can be made without acquisition of embankment material engineering properties, but based on the findings of the visual inspection, preliminary assessment of the static stability is that it is satisfactory.

b. Adequacy of Information

The information uncovered was adequate to perform hydrologic and hydraulic computations. The data was insufficient to perform even an approximate computation of the stability of the dam. A preliminary assessment of the dam could be made by visual observation only.

c. Urgency

The remedial measures and recommended actions along with a timetable for their completion are detailed below. All recommended action should be conducted under the supervision of an engineer who is experienced in the design, construction and inspection of dams.

7.2 Remedial Measures

a. Alternatives for Increasing Spillway Capacity

Alternatives for increasing spillway capacity are as follows:

1. Increase the embankment height of the dam thus permitting a higher discharge to pass.

2. Lower the spillway crest elevation.

3. Increase the effective spillway crest length.

4. A combination of any of the above alternatives.

b. Recommendations

1. Carry out a more precise hydrologic and hydraulic analysis of the dam within twelve months, to determine the need and type of mitigating measures necessary. If required, conduct a study of the means of increasing spillway discharge capacity and develop alternative schemes for construction. This should include the installation of headwater and tailwater gages. The ability of the dam to withstand overtopping should also be studied.

2. Fill in the eroded areas on the embankment with appropriate material within twelve months.

3. Repair timber retaining wall on upstream slope at the left side of the spillway. This should be done within twelve months.

4. Replace the deteriorated sections of the 12-inch CMP and provide a concrete headwall and apron at the outlet end. This work should be completed within twelve months.

The following additional actions are recommended:

1. The owner should develop an emergency action plan (if one is not already available) outlining actions to be taken by the operator to minimize downstream effects of an emergency and establish a flood warning system for the downstream communities within three months.

2. Conduct a complete topographic survey of the dam and surrounding area in order to develop a detailed plan and several cross-sections of the dam. Annotate and update the existing drawings and form a coherent as-built set.

c. O & M Procedures

The owner should develop , within one (1) year after formal approval of the report, written operating procedures and a periodic maintenance plan to insure the safety of the dam.

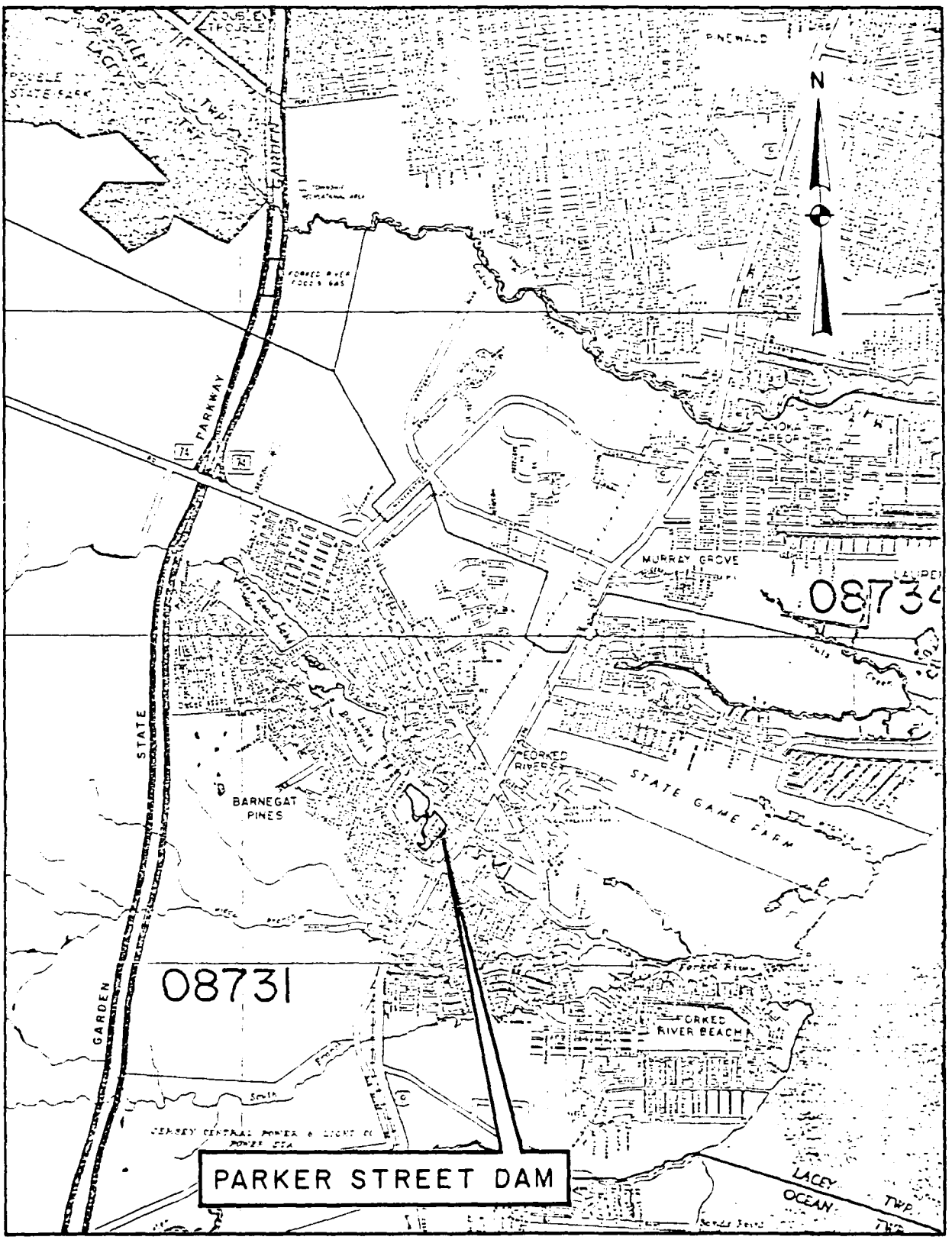
PLATES

PARKER STREET DAM

LACEY TOWNSHIP
OCEAN COUNTY, N. J.

KEY MAP

PLATE 1

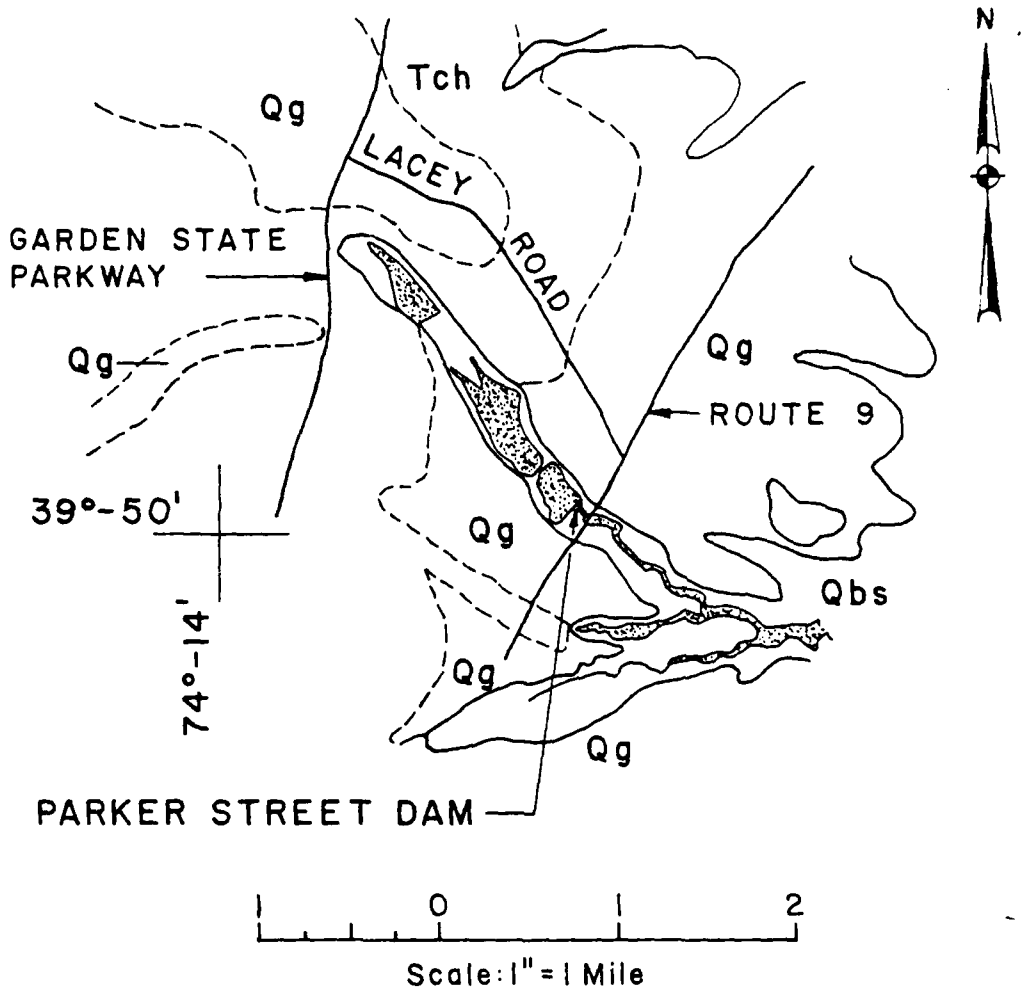


Scale in Feet (Approx.)

4,000 0 4,000 8,000 12,000

VICINITY MAP

PLATE 2



LEGEND

QUATERNARY

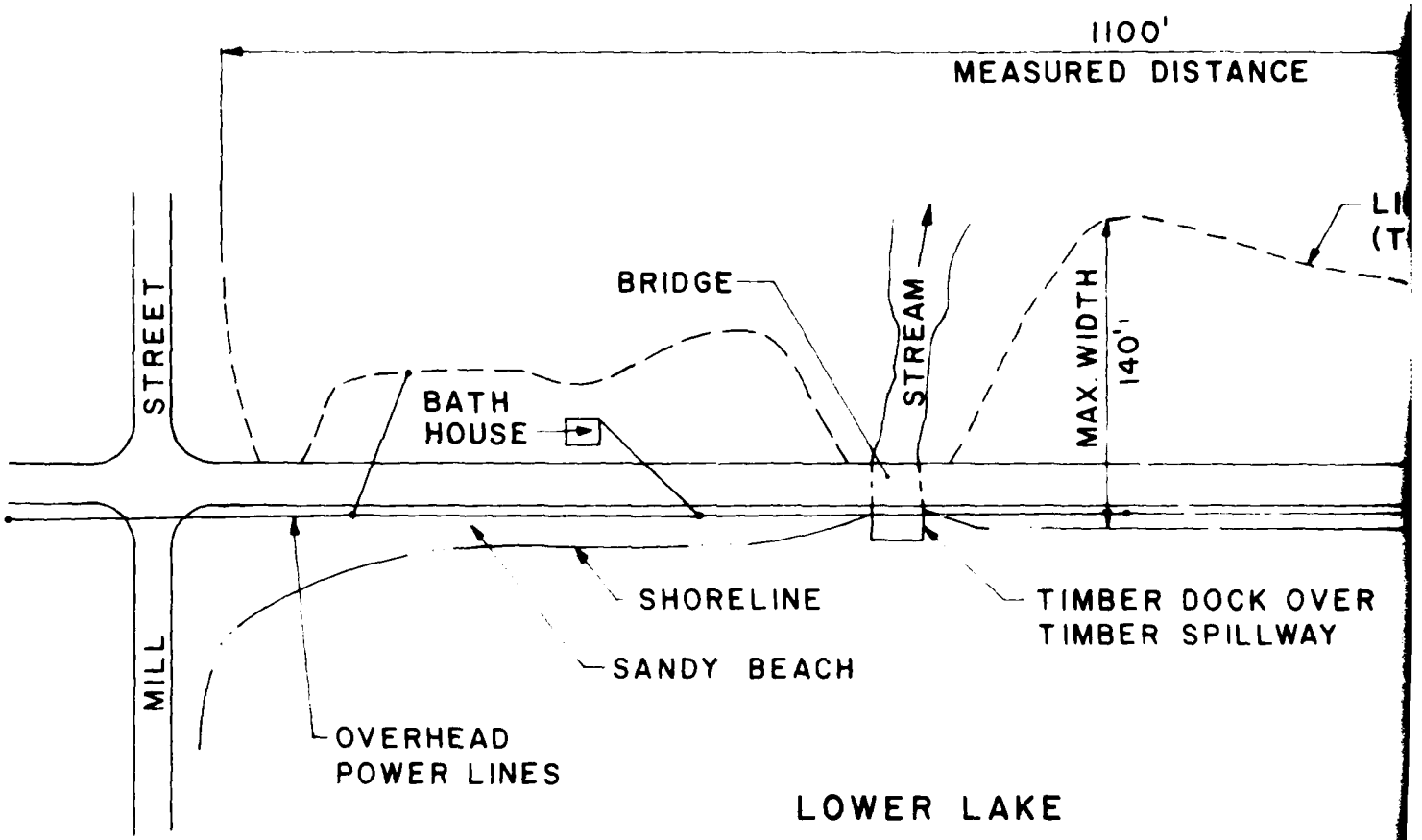
Qbs Beach Sand
Qg Gravel

TERTIARY

Tch Cohansey Sand

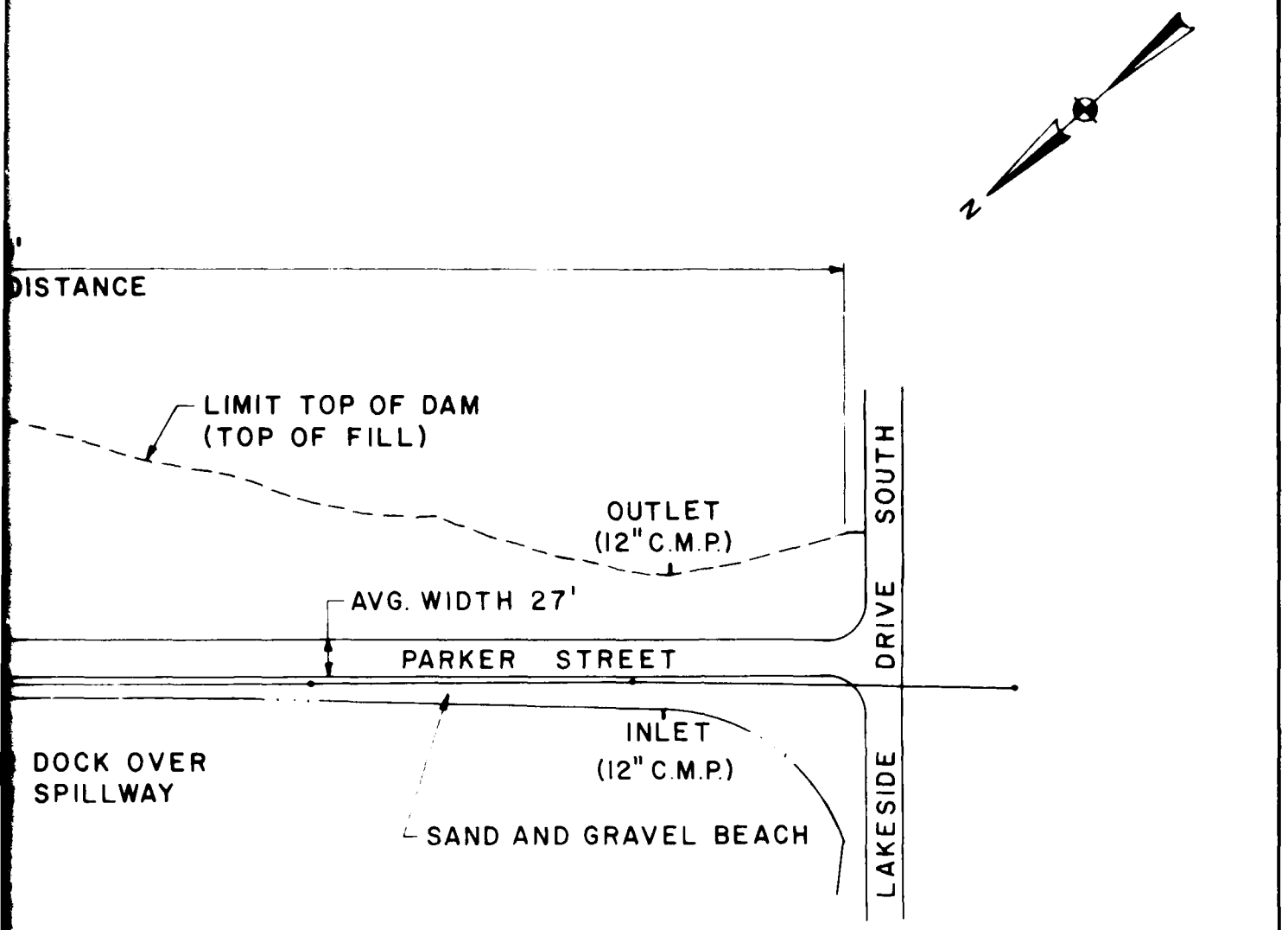
GEOLOGIC MAP
PARKER STREET DAM

PLATE 3



PLAN

SCALE: 1" = 100'



AN

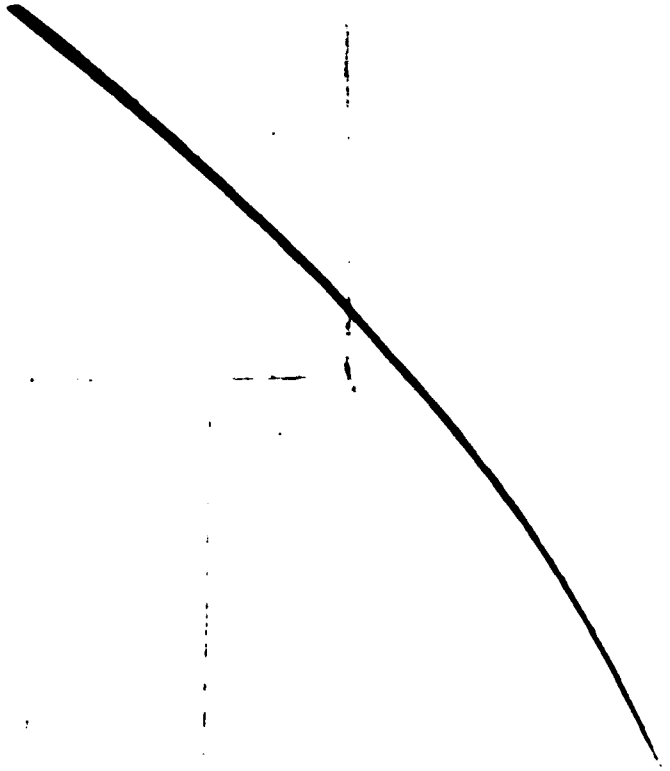
: 1" = 100'

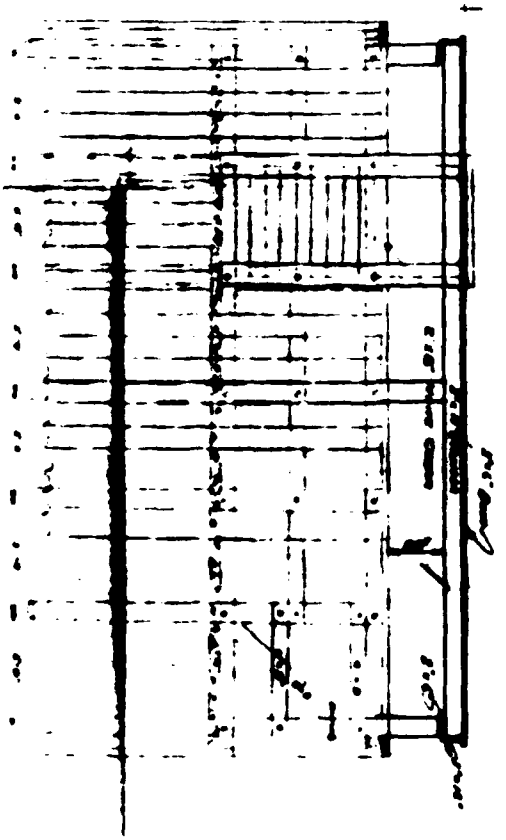
PARKER STREET DAM LACEY TOWNSHIP, OCEAN COUNTY, N.J.	
SKETCH OF PLAN PREPARED FROM FIELD NOTES TAKEN DURING INSPECTION ON JAN. 14, 1981	
BY: HARRIS-ECI ASSOCIATES WOODBRIDGE, N.J.	SCALE: AS SHOWN DATE: FEB. 1981 SHEET: 1 OF 1

PLATE 4

ESTIMATE OF QUANTITIES FOR TOWNSHIP

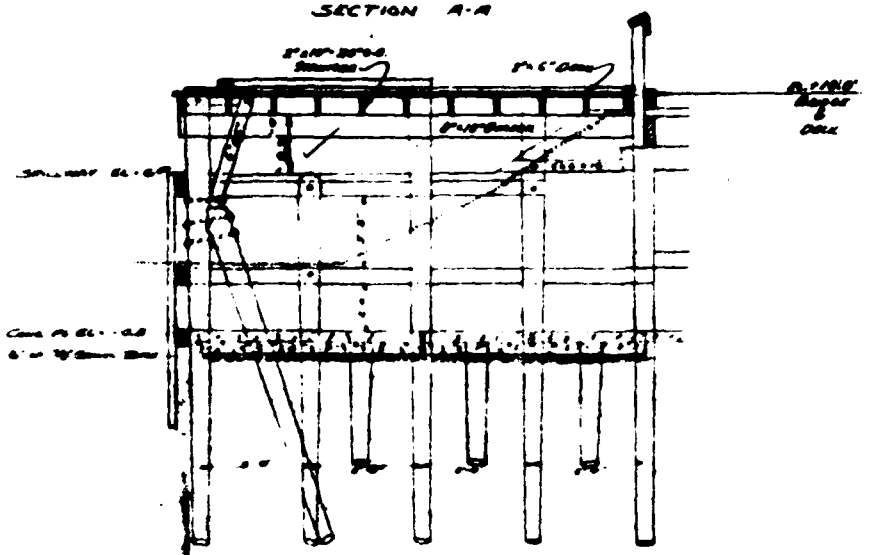
ITEM	DESCRIPTION	QUANTITY	UNIT
1	EXCAVATION	330	CU YDS
2	CONCRETE	2.5	CU YDS
3	REINFORCEMENT	500	LBS
4	TREATED TIMBER	37	MFBM
5	TREATED SHEETING	32	MFBM
6	TREATED TIMBER PILES	360	LIN FT
7	UNTREATED PILES	0	LIN FT
8	UNTREATED SHEETING	200	30 FT

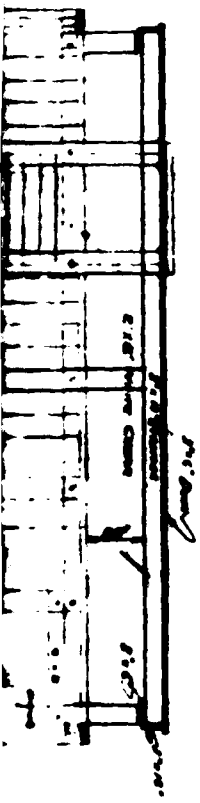


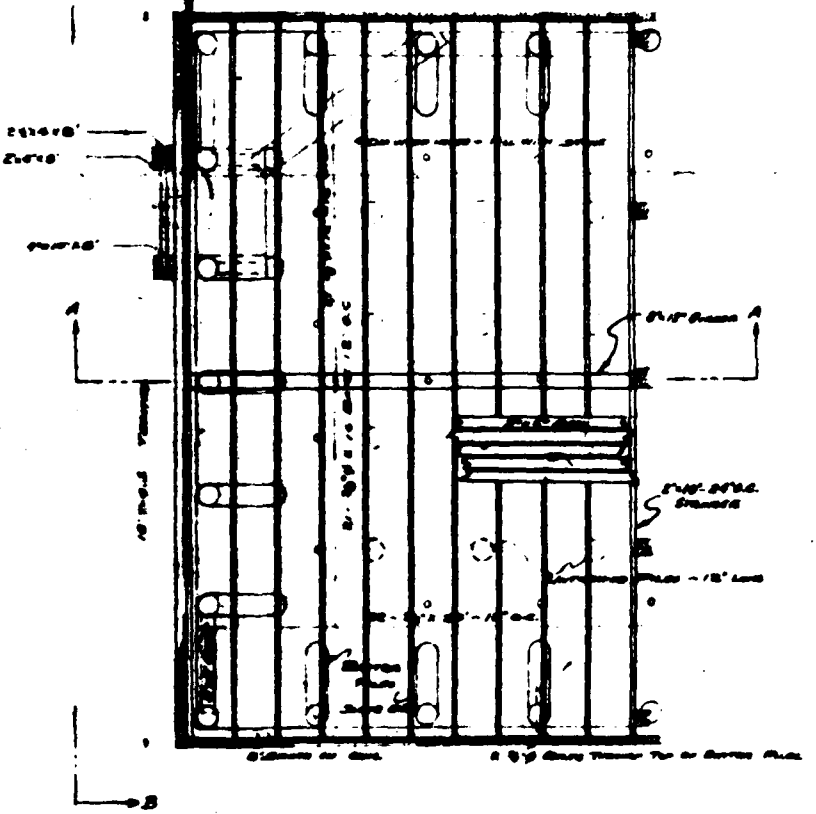


SECTION B-B

SECTION A-A







PLAN

Scale 1/8" = 1'-0"

FILE

DAM APPLICATIO

DAM APPLICATIO

FILE

PLANS O

PARKER STREE

ON NORTH BRANCH OF

LACEY TOWNSHIP , OCE

SCALES AS INDICATED

JOHN C. FELLOWS

STEEL SCHEDULE

FILE

DAM APPLICATION No. 468

DAM APPLICATION No. 468

FILE

PLANS OF

PARKER STREET SPILLWAY

ON NORTH BRANCH OF FORKED RIVER

LACEY TOWNSHIP, OCEAN COUNTY, N.J.

SCALES AS INDICATED MARCH 1953

JOHN C. FELLOWS TOWNSHIP ENGINEER

PLATE 5

APPENDIX A

CHECK LIST - VISUAL OBSERVATIONS

CHECK LIST - ENGINEERING, CONSTRUCTION MAINTENANCE DATA

CHECK LIST
VISUAL INSPECTION
PHASE I

Name Dam Parker Street Dam County Ocean State New Jersey Coordinators NJ-DEP

Date(s) Inspection January 14, 1981 Weather Cloudy Temperature 25°F
February 15, 1981 Partly Cloudy 45°F

Pool Elevation at Time of Inspection 6.5 NGVD Tailwater at Time of Inspection 0 NGVD

Inspection Personnel:

January 14, 1981

William Birch
Thomas Moroney
Joseph Sirianni

February 15, 1981

Joseph Sirianni

Owner/Representative:

EMBANKMENT

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS AND RECOMMENDATIONS
SURFACE CRACKS	None noticed.	
UNUSUAL MOVEMENT OR CRACKING AT OR BEYOND THE TOE	None noticed.	
SLOUGHING OR EROSION OF EMBANKMENT AND ABUTMENT SLOPES	Minor erosion in downstream parking area caused by rainfall runoff.	Fill in eroded areas with appropiate material.
VERTICAL & HORIZONTAL ALIGNMENT OF THE CREST	Vertical alignment appeared good. Horizontal alignment very irregular due to downstream area being filled in for parking area.	
RIPRAP FAILURES	None.	

EMBANKMENT

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS AND RECOMMENDATIONS
EARTH EMBANKMENT	There is a paved roadway on the crest. The downstream area has been filled in with sand and gravel for a parking area. The upstream area left of the spillway has been filled in with sand. There are telephone poles along the upstream crest of the embankment. There are some trees growing on the downstream slope at the left of the dam.	Due to the distance the trees are from the upstream crest, they pose no problem, and do not have to be removed.
JUNCTION OF EMBANKMENT AND ABUTMENT, SPILLWAY AND DAM	Left and right of the spillway there is a small timber retaining wall at the shoreline. The wall tc the left of the spillway is starting to deteriorate and is leaning towards the water.	Repair the wall.
ANY NOTICEABLE SEEPAGE	None noticed.	
STAFF GAGE AND RECORDER	None	
DRAINS	None	

OUTLET WORKS

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS AND RECOMMENDATIONS
CRACKING & SPALLING OF CONCRETE SURFACES IN STILLING BASIN	Spillway stilling basin was under water.	
INTAKE STRUCTURE	Spillway is a timber box structure with stop planks and in good condition. At the right end of the dam is a 12-inch C.M.P. resting on the lake bottom that is an additional outlet. There is 3-inches of sand in the bottom of the pipe.	
OUTLET STRUCTURE	There is no outlet structure for the spillway. The outlet end of the 12-inch C.M.P. is in bad condition. The bottom of the pipe has completely rusted out. There is no headwall for the pipe.	Replace deteriorated sections of the pipe and provide a concrete headwall and apron.
OUTLET FACILITIES	None.	
EMERGENCY GATE	None.	

UNGATED SPILLWAY

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS AND RECOMMENDATIONS
CONCRETE WEIR	Spillway is a timber box structure that is in good condition.	
APPROACH CHANNEL	Lake is the approach channel for spillway.	
DISCHARGE CHANNEL	Spillway discharges onto concrete apron. Apron was under water could not be seen.	
BRIDGE AND PIERS	Timber dock over spillway and timber columns are in good condition.	

INSTRUMENTATION

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS AND RECOMMENDATIONS
MONUMENTATION/SURVEYS	None.	
OBSERVATION WELLS	None.	
WEIRS	None.	
PIEZOMETERS	None.	
OTHER	None.	

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS AND RECOMMENDATIONS
SLOPES	The slopes are flat and wooded with houses along the right shoreline. There is no indication of slope instability.	
SEDIMENTATION	None visible.	

DOWNSTREAM CHANNEL

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS AND RECOMMENDATIONS
CONDITION (OBSTRUCTIONS, DEBRIS, ETC.)	The bottom of the channel near the outlet is rocky with some debris. The channel is affected by tidal waters.	
SLOPES	The slopes are shallow, flat and heavily wooded.	
APPROXIMATE NUMBER OF HOMES AND POPULATION	The channel flows under U.S. Route 9 approximately 450 feet downstream from the dam. There are commerical buildings on both sides of the channel along Route 9 and immediately downstream of the roadway is the Forked River State Marina.	

CHECK LIST
ENGINEERING DATA
DESIGN, CONSTRUCTION, OPERATION

ITEM	REMARKS
PLAN OF DAM	Available on microfilm at N. J. Department of Environmental Protection (NJ-DEP), 1474 Prospect Street, P. O. Box CN-029, Trenton, N. J. 08625
REGIONAL VICINITY MAP	Available - Ocean County Map and U.S.G.S. Quadrangle sheet for Forked River, N.J.
CONSTRUCTION HISTORY	No formal history exists, but can be deduced from available microfilm at NJ-DEP.
TYPICAL SECTIONS OF DAM	None available.
HYDROLOGIC/HYDRAULIC DATA	Limited data available at NJ-DEP
OUTLETS - PLAN	None available.
- DETAILS	None available.
- CONSTRAINTS	None.
- DISCHARGE RATINGS	Not available.
RAINFALL / RESERVOIR RECORDS	Not available.

CHECK LIST
ENGINEERING DATA
DESIGN, CONSTRUCTION, OPERATION
(continued)

ITEM	REMARKS
DESIGN REPORTS	None available.
GEOLOGY REPORTS	Available U.S.G.S. Geologic Overlay Sheet for Ocean County and Engineering Soils Survey of New Jersey, Report No. 8 - Ocean County, by Rutgers University (New Brunswick, NJ).
DESIGN COMPUTATIONS HYDROLOGY & HYDRAULICS DAM STABILITY SEEPAGE STUDIES	None available.
MATERIALS INVESTIGATIONS BORING RECORDS LABORATORY FIELD	None available.
POST-CONSTRUCTION SURVEYS OF DAM	None.
BORROW SOURCES	Unknown.
SPILLWAY PLAN - SECTIONS - DETAILS	Available on microfilm, NJ-DEP.

CHECK LIST
ENGINEERING DATA
DESIGN, CONSTRUCTION, OPERATION
(continued)

ITEM	REMARKS
OPERATING EQUIPMENT PLANS AND DETAILS	None.
MONITORING SYSTEMS	None available.
MODIFICATIONS	History of modifications to the original dam available on microfilm, NJ-DEP.
HIGH POOL RECORDS	Not kept.
POST CONSTRUCTION ENGINEERING STUDIES AND REPORTS	Existing Condition Report, February 22, 1974
PRIOR ACCIDENTS OF FAILURE OF DAM - DESCRIPTION - REPORTS	The spillway failed in 1952 due to unknown causes.
MAINTENANCE OPERATION RECORDS	None known to exist.

APPENDIX B

PHOTOGRAPHS

Photo 1 - View of spillway looking towards left end of dam. (Photo taken January 14, 1981).

Photo 2 - View of low-level outlet stop planks from top of dock. (Photo taken January 14, 1981).

Photo 3 - View of spillway from downstream of timber roadway bridge. (Photo taken January 14, 1981).

Photo 4 - View of deteriorated timber retaining wall to the left of the spillway. (Photo taken on January 14, 1981).

Photo 5 - View of inlet of 12-inch C.M.P. at the right end of dam. (Photo taken January 14, 1981).

Photo 6 - View of discharge end of 12-inch C.M.P. Flow is from the pipe on the right. Upstream end of pipe on the left could not be found. (Photo taken January 14, 1981).

Photo 7 - View of upstream slope of left end of dam, taken from spillway. (Photo taken January 14, 1981).

Photo 8 - View of upstream slope of right end of dam. (Photo taken February 15, 1981).

Photo 9 - View of downstream slope at left end of dam. (Photo taken January 14, 1981).

Photo 10 - View of downstream slope looking towards right end of dam. (Photo taken January 14, 1981).

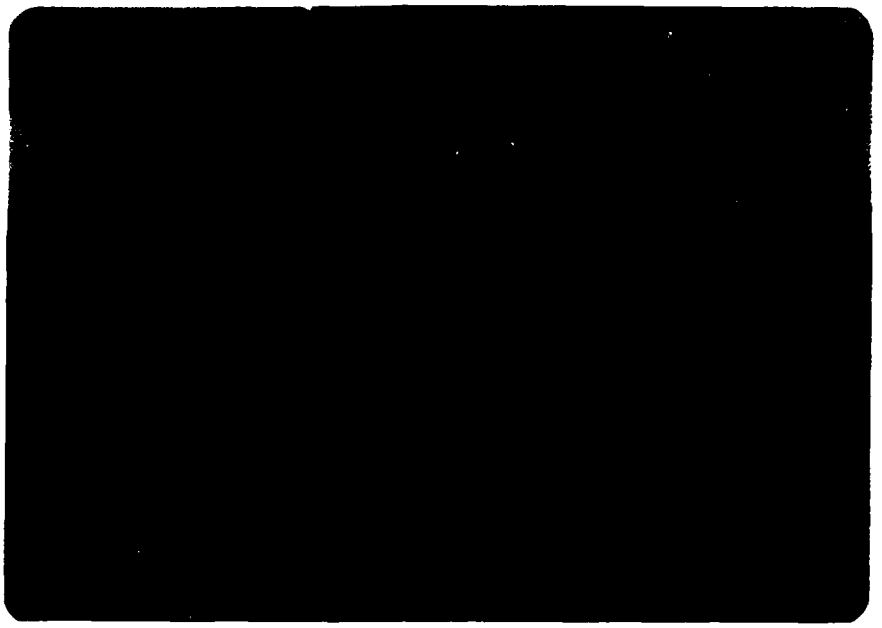


Photo 11 - View of lake from spillway. (Photo taken February 15, 1981).

Photo 12 - View of downstream channel from roadway. (Photo taken January 14, 1981).

Photo 13 - View of downstream channel at U.S. Route 9 crossing. (Photo taken January 14, 1981).

Photo 14 - View of Forked River State Marina immediately downstream of Route 9. (Photo taken January 14, 1981).

APPENDIX C

SUMMARY OF ENGINEERING DATA

CHECK LIST
HYDROLOGIC AND HYDRAULIC DATA
ENGINEERING DATA

Name of Dam: PARKER STREET DAM

Drainage Area Characteristics: 15.0 square miles

Elevation Top Normal Pool (Storage Capacity): 6.5 NGVD (36 acre-feet)

Elevation Top Flood Control Pool (Storage Capacity): N/A

Elevation Maximum Design Pool: 11.64 NGVD (SDF pool 264 acre-feet)

Elevation Top Dam: 10 NGVD (140 acre-feet)

SPILLWAY CREST:

a. Elevation 6.5 NGVD

b. Type Timber box structure

c. Width 20 feet

d. Length 70 feet

e. Location Spillover Entire length of spillway.

f. No. and Type of Gates None

OUTLET WORKS:

a. Type 4 foot x 6 foot opening

b. Location Upstream face of spillway

c. Entrance Inverts 0.5 NGVD (Estimated)

d. Exit Inverts 0.5 NGVD (Estimated)

e. Emergency Draindown Facilities Removable timber stop planks.

HYDROMETEOROLOGICAL GAGES:

a. Type None

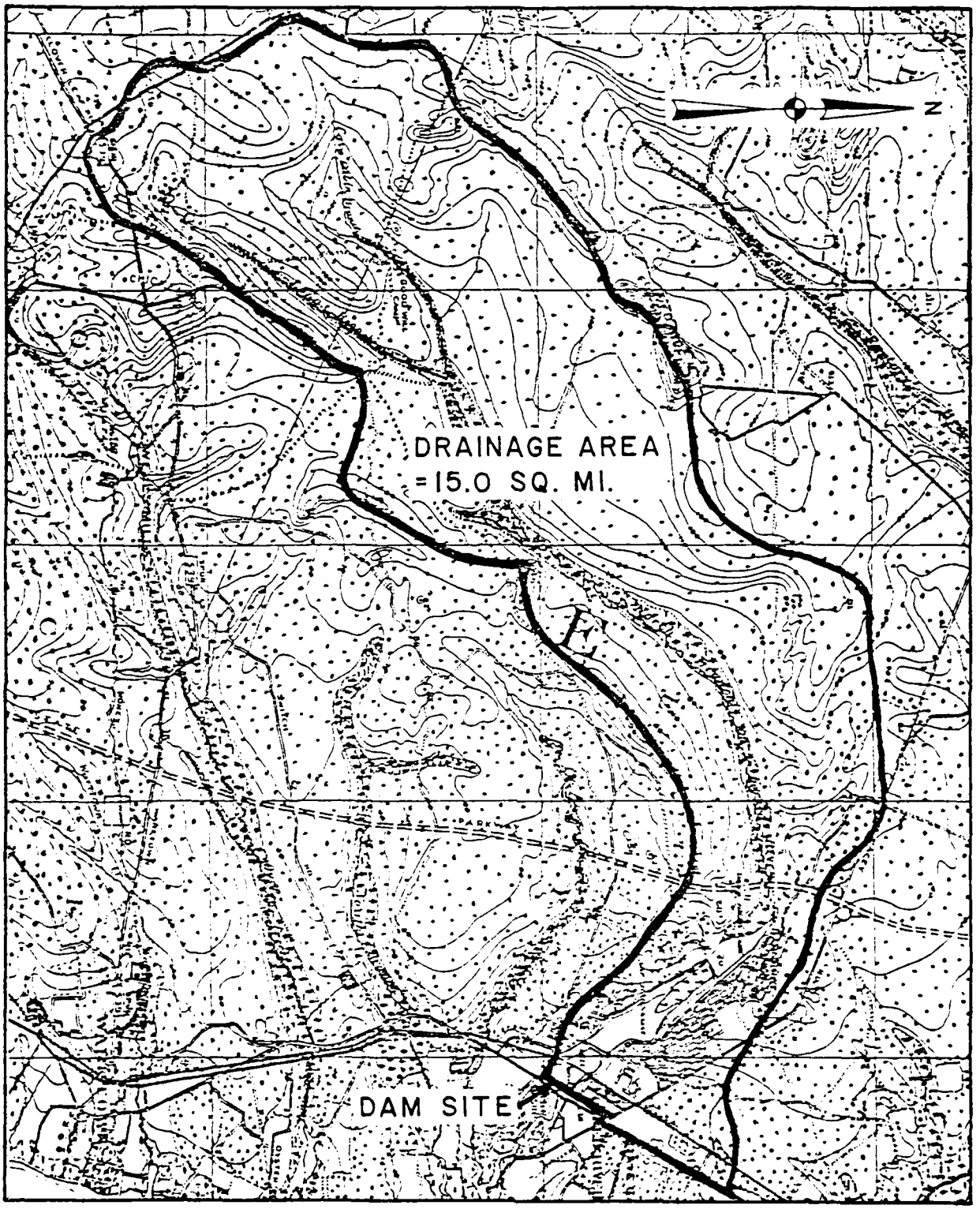
b. Location None

c. Records None

MAXIMUM NON-DAMAGING DISCHARGE: 1,513 cfs at elevation 10 NGVD

APPENDIX D

HYDROLOGIC COMPUTATIONS



1 0 1 2

Scale: 1" = 1 Mile

PARKER STREET DAM
DRAINAGE BASIN

Area of the Lake at normal pool level

(Area obtained from Dept. of Conservation and Economic Development)

Area = 16 Ac

Height of Dam = 10.3 Ft (at the center of spillway)

Small Dam, High Hazard

S.D.F = $\frac{1}{2}$ PMF

Hydrologic analysis :—

D.A = 15.0 Sq. mi

D.A at Dear head Lake Dam = 13.8 Sq mi

Local D.A between Dear head Lake Dam & Parker Street Dam = 15 - 13.8 = 1.2 Sq mi

Outflow H.G at Dear head Lake + Local inflow = Inflow H.G at Parker Steet Dam. Inflow routed through Reservoir

Elevation Area - Capacity Relationship :

Information obtained from U.S.G.S

Ele	-0.3	0.5	10	20
Surface Area	0	16.0	45.1	54.3

HEC-1 [illegible] incremental unit capacity storage capacity from surface area and elevation

Determination of PMP

Probable Maximum ppt. (inches) for an area of 10 square miles and 6 hour duration
= 26 "

D.A = 15.0 sq miles
Zone = 6

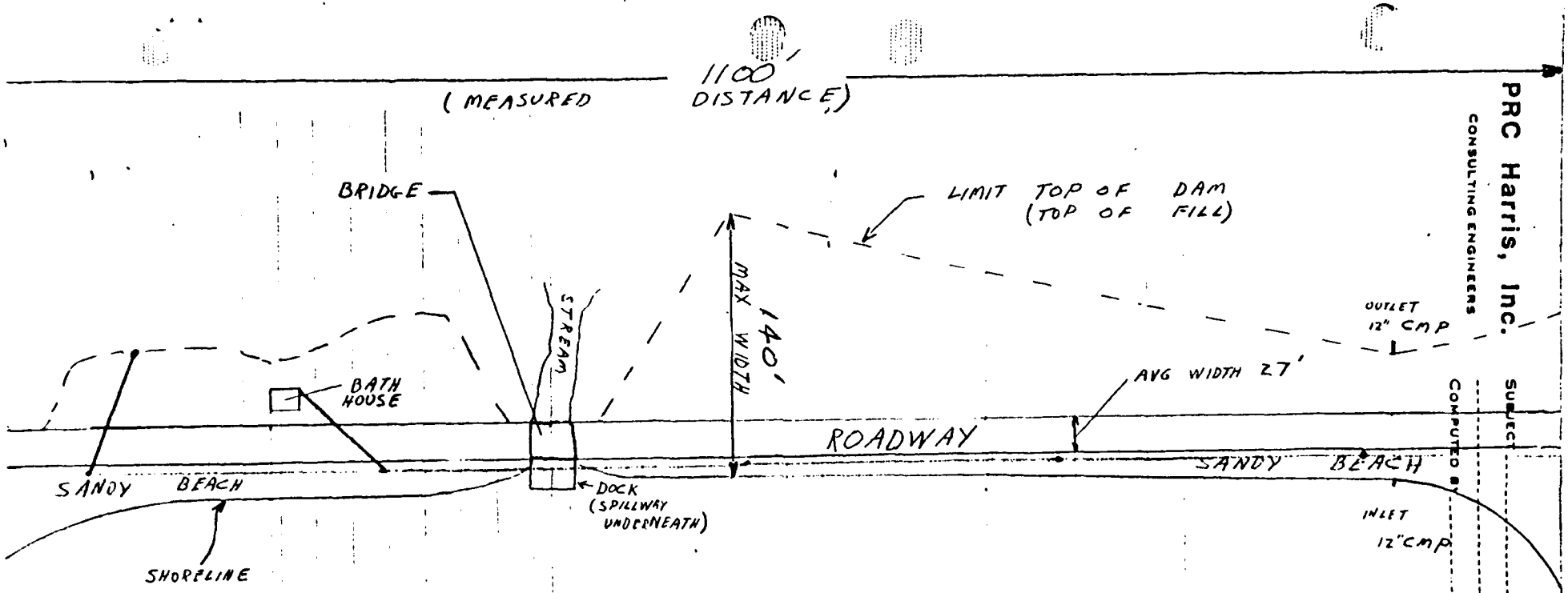
The corps of Engineers recommended that 19.375% reduction to be applied to the report value for a 10 sq miles drainage area in order to provide for the imperfect fit of the storm isohyetal patterns to the shape of the particular basin.

P.M.P = 21" (This adjustment is made by the program)

Depth area duration relationship.
Percentage to be applied to the above 6 hr. PMP

6 hr = 100 %
12 hr = 108 %
24 hr = 117 %
48 hr = 127 %

Initial infiltration = 1.0 inch/hr
Constant infiltration = 0.1 inch/hr.



LOWER LAKE

— OVERHEAD POWER LINES

SCALE 1" = 100'

PRC Harris, Inc.
CONSULTING ENGINEERS

SUBJECT PARKER STREET DAM

COMPUTED BY

CHECKED BY

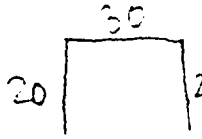
SHEET NO. 3 OF 1

JOB NO. 10-1176-01

DATE 2/9/81

Scheme of Dam and Spillway :-

Spillway :-



L = 70 Ft

Crest El = 6.5 NGVD

Sharp Crested weir C = 3.3

Dam

Effective length = 1100 Ft

C (very wide) = 2.5

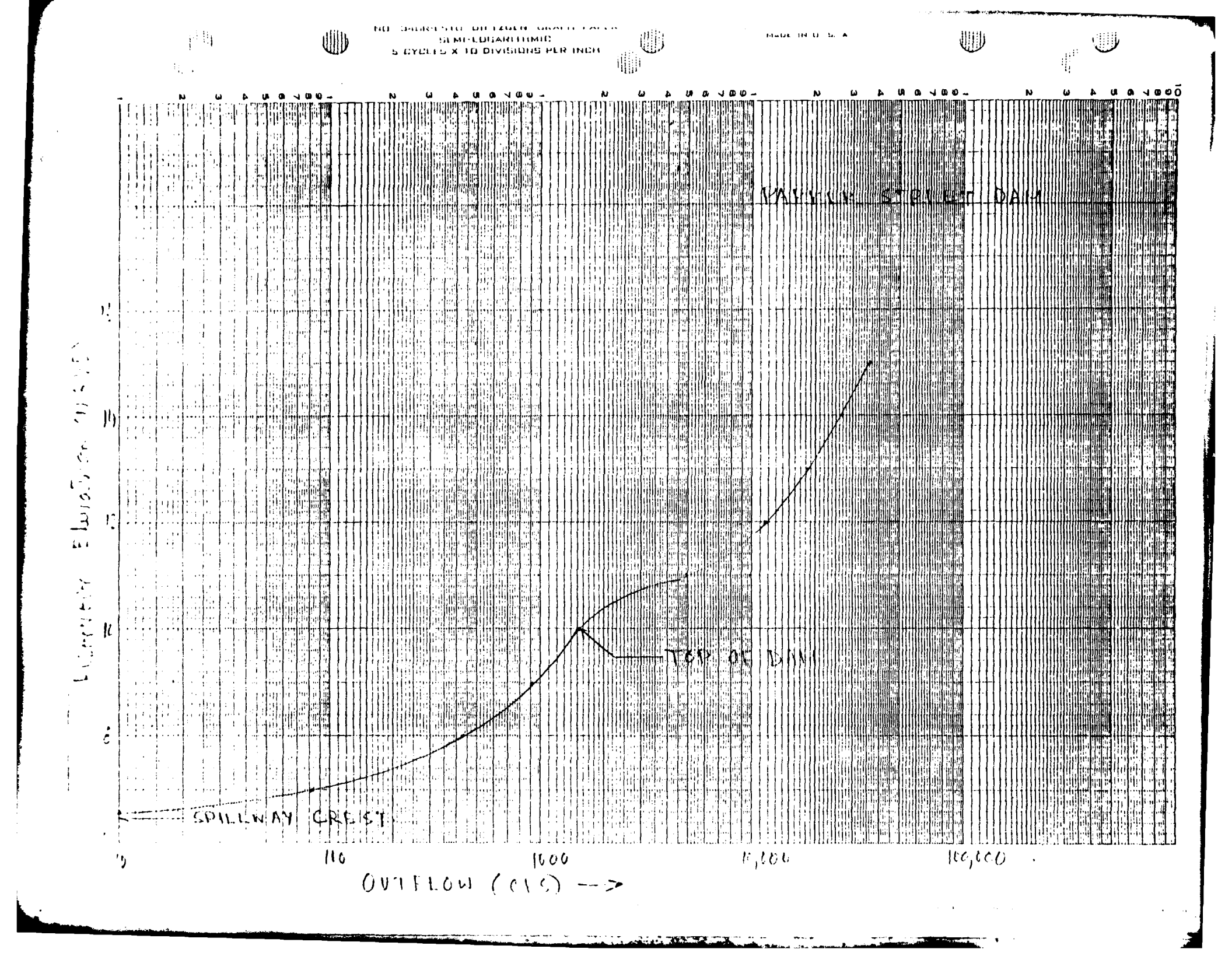
∴ Top of Dam = 10.0 NGVD

Rating Curve (stage outflow relation)

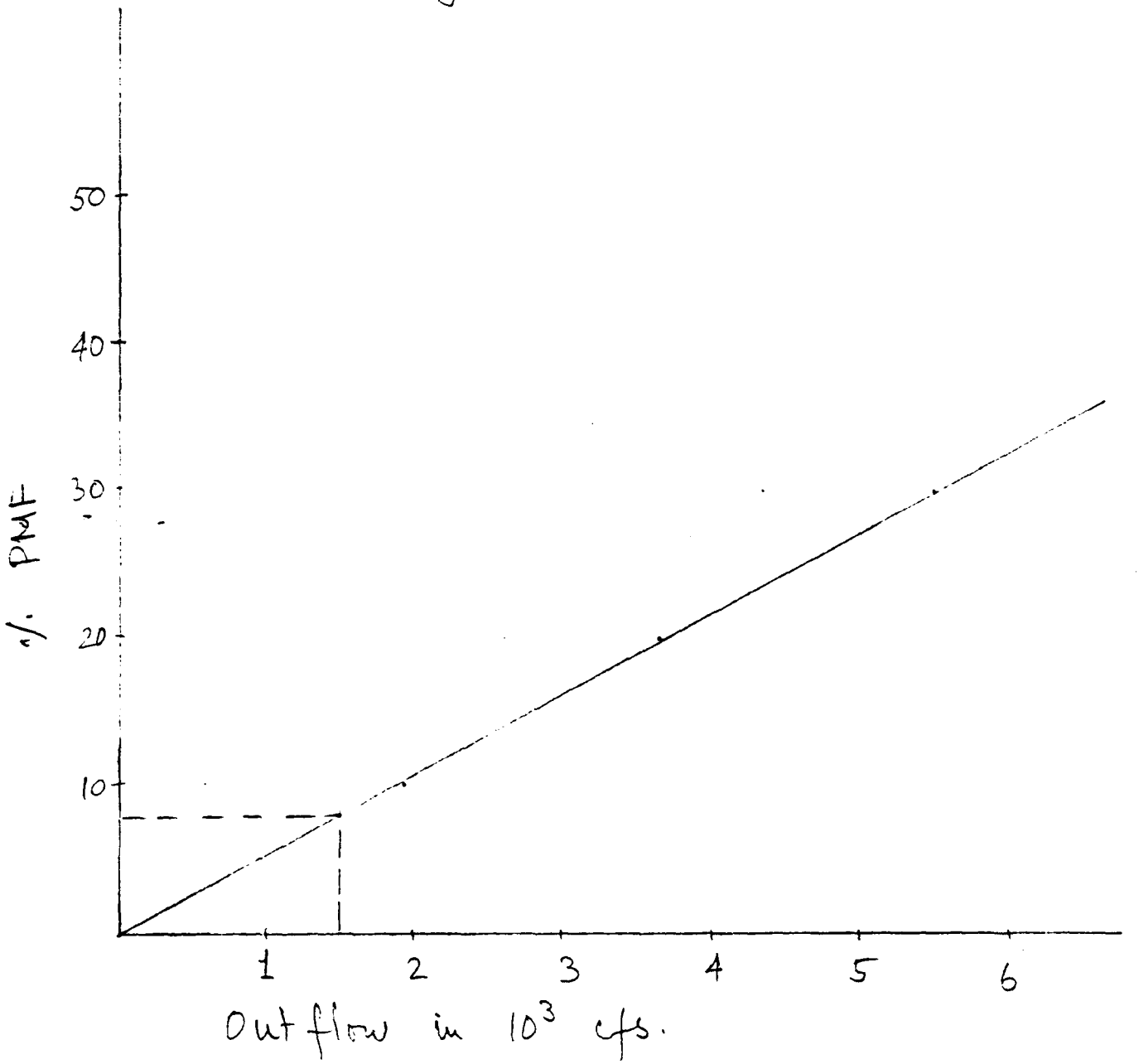
$Q_S = 3.3\ L\ H_S^{3/2} = 3.3 \times 70\ H_S^{1.5} = 231\ H_S^{1.5}$

$Q_D = 2.5\ L\ H_D^{3/2} = 2.5 \times 1100\ H_D^{1.5} = 2750\ H_D^{1.5}$

N.S.El.	Head in Spillway H_S	Q_S $231\ H_S^{1.5}$	Head in Dam H_D	Q_D $2750\ H_D^{1.5}$	Q_T $Q_S + Q_D$
6.5	–	–			–
7.0	.5	82			82
8.0	1.5	424			424
9.0	2.5	913			913
10.0	3.5	1513	–	–	1,513
11.0	4.5	2205	1	2750	4,955
12.0	5.5	2980	2	8,429	11,409
13.0	6.5	3826	3	14,289	18,117
14.0	7.5	4,740	4	21,900	26,640
15.0	8.5	5,725	5	30,746	36,471


SEMI-LOGARITHMIC
5 CYCLES X 10 DIVISIONS PER INCH
MADE IN U. S. A.
MAIN STREET DAM
TOP OF DAM
SPILLWAY CREST
110
1000
OUTFLOW (CFS) -->

Overtopping Potential



Overtopping of Dam occurs at El = 10.00
Q = 1513 (8 % of PMF)

Cross Section at D/S Reach.

The tidal effect at the downstream reach will affect the normal flow in the channel.

Analysis of W.S. el. at D/S reach has no significance.

Breach Analysis

The tidal effect at the downstream reach will change the normal flow channel routing condition after breach. Therefore, the breach analysis is also insignificant.

Cross Section at D/S Reach.

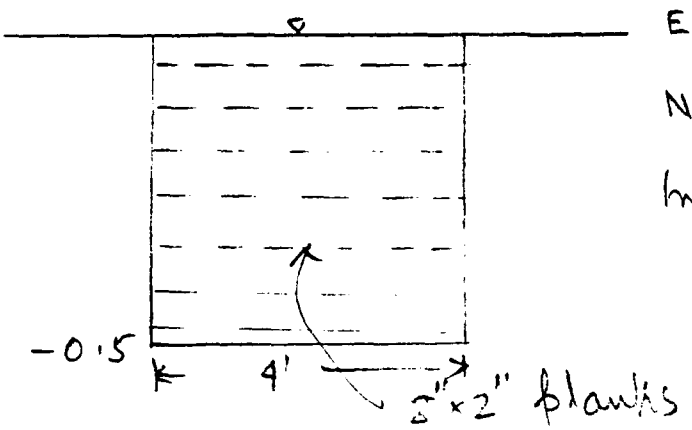
The tidal effect at the downstream reach will affect the normal flow in the channel.

Analysis of W.S. el. at D/S reach has no significance.

Breach Analysis

The tidal effect at the downstream reach will change the normal flow channel routing condition after breach. Therefore, the breach analysis is also insignificant.

DRAWDOWN TIME COMPUTATION



Normal el. to start = 6.5

Inflow = $\frac{2 \text{ cfs}}{\text{mi}^2} \times 15 \text{ mi}^2$

= 30 cfs.

$Q = CA\sqrt{2gh}$ $C = 0.62$

$= .62 A \sqrt{2gh}$

Assume tailwater Elevation = 0.0 *

Area $A_2 = \left(\frac{h_2}{h_1}\right)^2 A_1 = \left(\frac{h_2}{6.5}\right)^2 \times 16 = .3787\, h_2^2$

($A_1 = 16$ AC $h_1 = 6.5$)

Drawdown time = $\frac{\text{Vol in AF} \times 43560}{Q \times 3600} = \frac{12.1 \text{ Vol}}{Q}$ H

Drawdown time with inflow = $\frac{30 \times t}{Q}$ Hrs

Area of Orifice = Variable with depth

$4' \times h$

* Tailwater is affected by tides. This analysis is made considering there is not tidal effect at the D/S end of the dam.

PRC Harris, Inc.
CONSULTING ENGINEERS

SUBJECT N.I.T. Dam Inspection
Parker Street Lake Dam
COMPUTED BY S.B. CHECKED BY

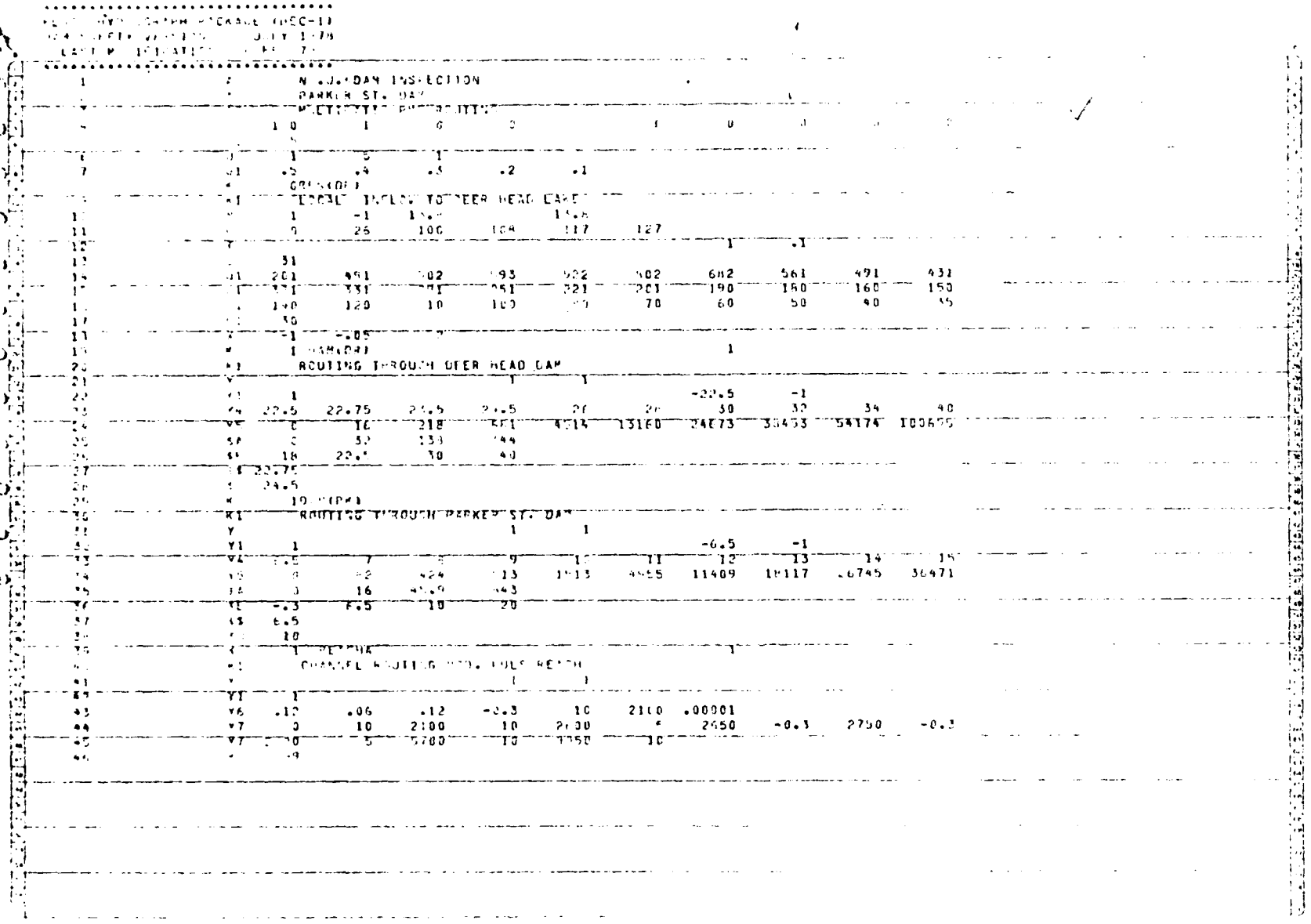
SHEET NO. 9 OF
JOB NO. 10-1176-C1
DATE Feb. 1981

Res. El	Area Ac	Avg Area Ac.	Vol AF	Avg Res El ↑	Area of orifice	Q $.62A\sqrt{2gh}$	Drawdown time $\frac{Vol \times 12.1}{Q}$	Cum time	Drawdown with inflow $30 \times t/Q$	Cum time
Ft	Ac	Ac.	AF	Ft	A	CFS	Hrs	Hrs	Hrs	Hrs
6.5	16									
		13.8	13.8	6	24	292	.6	.6	.06	.66
5.5	11.5									
		9.6	9.6	5	20	222	.5	1.1	.07	1.23
4.5	7.7									
		6.2	6.2	4	16	159	.5	1.6	.01	1.82
3.5	4.6									
		3.5	3.5	3	12	103	.4	2.0	.11	2.33
2.5	2.4									
		1.7	1.7	2	8	56	.4	2.4	.21	2.94
1.5	.9									*
		.5	.5	1	4	20	.3	2.7	.45	3.69
0.5	.1									
		.05	.025	.25	1	2.5	.1	2.8	1.2	4.99
0	0									

Time of Drawdown without inflow = 2.8 hrs

Time of Drawdown with inflow = 2.94 hrs.*

* As the inflow is more than outflow below this line there will be no drawdrown when there is a constant inflow



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**************************************
FLOOD HYDROGRAPH PACKAGE (HEC-1)
DAM SAFETY VERSION       JULY 1978
LAST MODIFICATION   [illegible]
**************************************

RUN DATE [illegible]
TIME [illegible]

            NJ.DAM INSPECTION
            PARKER ST. DAM
            MULTIRATIO PMF ROUTING

                          JOB SPECIFICATION
  NQ    NHR   NMIN   IDAY    IHR   IMIN   METRC   IPLT   IPRT   NSTAN
 150      1      0      0      0      0       0      0      0      0
                     JOPER    NWT  LROPT   TRACE
                         5      0      0       0

                  MULTI-PLAN ANALYSES TO BE PERFORMED
                     NPLAN= 1  NRTIO= 5  LRTIO= 1
          RTIOS=  0.50   0.40   0.30   0.20   0.10

**********     **********     **********     **********     **********

                        SUB-AREA RUNOFF COMPUTATION

        INFLOW TO DEEP HOLE LAKE
          ISTAQ   ICOMP   IECON   ITAPE    JPLT    JPRT   INAME  ISTAGE   IAUTO
          (CR)        [illegible]  0       0       0       0       0       0       0

                          HYDROGRAPH DATA
  IHYDG   IUHG   TAREA    SNAP   TRSDA   TRSPC   RATIO   ISNOW   ISAME   LOCAL
      1     -1   13.30     0.0   13.30    0.00   0.000       0       0       0

                           PRECIP DATA
          SPFE     PMS      R6     R12     R24     R48     R72     R96
          0.00   26.00  100.00  109.00  117.00  127.00    0.00    0.00
TRSPC COMPUTED BY THE PROGRAM IS 0.811

                            LOSS DATA
  LROPT  STRKR  DLTKR  RTIOL  ERAIN  STRKS  RTIOK  STRTL  CNSTL  ALSMX  RTIMP
      0   0.00   0.00   1.00   0.00   0.00   1.00   1.00   0.10   0.00   0.00

                    GIVEN UNIT GRAPH, NUHGQ= 51
  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]   682.   [illegible]   491.   431.
  [illegible]  [illegible]  [illegible]  [illegible]   221.   201.   190.   180.   160.   150.
  [illegible]   120.   110.   100.    80.    70.    60.    50.    40.    35.
   31.
          UNIT GRAPH TOTALS   7667. CFS OR 1.07 INCHES OVER THE AREA

                          RECESSION DATA
            STRTQ=  -1.00    QRCSN=  -0.05    RTIOR= 2.00

                        END-OF-PERIOD FLOW
MO.DA  HR.MN  PERIOD  RAIN  EXCS  LOSS  COMP Q     MO.DA  HR.MN  PERIOD  RAIN  EXCS  LOSS  COMP Q
 1.01   1.00     1    0.01  0.00  0.01    13.       1.03   3.00    51    0.00  0.00  0.00   7207.
 1.01   2.00     2    0.01  0.00  0.01    12.       1.03   4.00    52    0.00  0.00  0.00   6335.
 1.01  [illegible]  3  [illegible]  [illegible]  .01   11.   1.03  [illegible]  53   0.00  0.00  0.00   5565.
 1.01  [illegible]  4  [illegible]  [illegible]  .01  [illegible]  1.03  [illegible]  54  0.00  0.00  0.00  4[illegible]9.
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1.01	5.00	5	0.01	0.00	0.01	1[illegible].	1.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.01	6.00	6	0.01	0.00	0.01	[illegible].	1.[illegible]	[illegible]	56	0.00	0.00	0.00	0.00	4123.
1.01	7.00	7	0.00	0.00	0.00	[illegible].	1.[illegible]	[illegible]	57	0.00	0.00	0.00	0.00	3722.
1.01	8.00	8	0.02	0.00	0.02	8.	1.[illegible]	10.00	58	0.00	0.00	0.00	0.00	3441.
1.01	9.00	9	0.02	0.00	0.02	7.	1.03	11.00	59	0.00	0.00	0.00	0.00	3192.
1.01	10.00	10	0.02	0.00	0.02	7.	1.03	12.00	60	0.00	0.00	0.00	0.00	2988.
1.01	11.00	11	0.02	0.00	0.02	6.	1.03	13.00	61	0.00	0.00	0.00	0.00	2792.
1.01	12.00	12	0.02	0.00	0.02	6.	1.03	14.00	62	0.00	0.00	0.00	0.00	2595.
1.01	13.00	13	0.18	0.00	0.11	5.	1.03	15.00	63	0.00	0.00	0.00	0.00	2027.
1.01	14.00	14	0.02	0.00	0.02	[illegible].	1.03	16.00	64	0.00	0.00	0.00	0.00	1727.
1.01	15.00	15	0.07	0.00	0.07	[illegible].	1.03	17.00	65	0.00	0.00	0.00	0.00	1474.
1.01	16.00	16	0.08	0.00	0.01	101.	1.03	18.00	66	0.00	0.00	0.00	0.00	1248.
1.01	17.00	17	0.15	0.15	0.10	270.	1.03	19.00	67	0.00	0.00	0.00	0.00	1053.
1.01	18.00	18	0.20	0.10	0.19	531.	1.03	20.00	68	0.00	0.00	0.00	0.00	[illegible]8.
1.01	19.00	19	0.02	0.00	0.02	665.	1.03	21.00	69	0.00	0.00	0.00	0.00	[illegible]29.
1.01	20.00	20	0.02	0.00	0.02	665.	1.03	22.00	70	0.00	0.00	0.00	0.00	773.
1.01	21.00	21	0.02	0.00	0.02	629.	1.03	23.00	71	0.00	0.00	0.00	0.00	721.
1.01	22.00	22	0.02	0.00	0.02	592.	1.04	0.00	72	0.00	0.00	0.00	0.00	673.
1.01	23.00	23	0.02	0.00	0.02	454.	1.04	1.00	73	0.00	0.00	0.00	0.00	628.
1.02	0.00	24	0.02	0.00	0.02	390.	1.04	2.00	74	0.00	0.00	0.00	0.00	586.
1.02	1.00	25	0.13	0.03	0.10	344.	1.04	3.00	75	0.00	0.00	0.00	0.00	547.
1.02	2.00	26	0.13	0.03	0.10	317.	1.04	4.00	76	0.00	0.00	0.00	0.00	510.
1.02	3.00	27	0.13	0.03	0.10	301.	1.04	5.00	77	0.00	0.00	0.00	0.00	476.
1.02	4.00	28	0.13	0.03	0.10	294.	1.04	6.00	78	0.00	0.00	0.00	0.00	444.
1.02	5.00	29	0.13	0.03	0.10	292.	1.04	7.00	79	0.00	0.00	0.00	0.00	414.
1.02	6.00	30	0.13	0.03	0.10	289.	1.04	8.00	80	0.00	0.00	0.00	0.00	387.
1.02	7.00	31	0.25	0.10	0.10	320.	1.04	9.00	81	0.00	0.00	0.00	0.00	361.
1.02	8.00	32	0.25	0.10	0.10	397.	1.04	10.00	82	0.00	0.00	0.00	0.00	336.
1.02	9.00	33	0.25	0.10	0.10	543.	1.04	11.00	83	0.00	0.00	0.00	0.00	314.
1.02	10.00	34	0.25	0.10	0.10	696.	1.04	12.00	84	0.00	0.00	0.00	0.00	293.
1.02	11.00	35	0.25	0.10	0.10	840.	1.04	13.00	85	0.00	0.00	0.00	0.00	273.
1.02	12.00	36	0.25	0.10	0.10	964.	1.04	14.00	86	0.00	0.00	0.00	0.00	255.
1.02	13.00	37	2.11	2.01	0.10	1432.	1.04	15.00	87	0.00	0.00	0.00	0.00	234.
1.02	14.00	38	2.53	2.43	0.10	2497.	1.04	16.00	88	0.00	0.00	0.00	0.00	222.
1.02	15.00	39	3.16	3.06	0.10	4555.	1.04	17.00	89	0.00	0.00	0.00	0.00	207.
1.02	16.00	40	8.01	7.91	0.10	[illegible]56.	1.04	18.00	90	0.00	0.00	0.00	0.00	193.
1.02	17.00	41	2.95	2.85	0.10	13150.	1.04	19.00	91	0.00	0.00	0.00	0.00	180.
1.02	18.00	42	2.32	2.22	0.10	16482.	1.04	20.00	92	0.00	0.00	0.00	0.00	168.
1.02	19.00	43	0.19	0.09	0.10	17205.	1.04	21.00	93	0.00	0.00	0.00	0.00	157.
1.02	20.00	44	0.19	0.09	0.10	17491.	1.04	22.00	94	0.00	0.00	0.00	0.00	146.
1.02	21.00	45	0.19	0.09	0.10	17163.	1.04	23.00	95	0.00	0.00	0.00	0.00	137.
1.02	22.00	46	0.19	0.09	0.10	16894.	1.05	0.00	96	0.00	0.00	0.00	0.00	128.
1.02	23.00	47	0.19	0.09	0.10	16697.	1.05	1.00	97	0.00	0.00	0.00	0.00	119.
1.03	0.00	48	0.19	0.09	0.10	16563.	1.05	2.00	98	0.00	0.00	0.00	0.00	111.
1.03	1.00	49	0.00	0.00	0.00	16280.	1.05	3.00	99	0.00	0.00	0.00	0.00	104.
1.03	2.00	50	0.00	0.00	0.00	16215.	1.05	4.00	100	0.00	0.00	0.00	0.00	97.
									TOTAL	26.74	23.00	3.73	232155.	
										(680.)(584.)(96.)(6575.89)				

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
	[illegible]56.	1 35.	[illegible]57.	3177.	232159.
CMS	516.	446.	215.	91.	6572.
INCHES		12.67	22.34	25.04	26.01
CM		321.87	567.53	636.76	660.32
CFS		7643.	10436.	19021.	19182.
THOUS CU M		9183.	20274.	23462.	23660.

[illegible] AT STAGE 1 FOR [illegible] 1. HRS

[illegible].	[illegible].	[illegible].	[illegible].	[illegible].	[illegible].	4.	4.	4.	3.
[illegible].	[illegible].	[illegible].	[illegible].	[illegible].	[illegible].	17.	26.	33.	34.
31.	21.	22.	14.	11.	11.	11.	14.	14.	14.
1.	[illegible].	17.	[illegible].	4.	[illegible].	7.	12.	22.	40.
[illegible].	41.	1.	[illegible].	0.	7.	[illegible].	[illegible].	[illegible].	1.
[illegible].	1.	[illegible].	[illegible].	[illegible].	[illegible].	[illegible].	[illegible].	[illegible].	[illegible].

PEAK FLOW AND STORAGE [END-OF-PERIOD] SUMMARY FOR MULTIPLE PLAN-RATES ECONOMIC COMPUTATIONS
FLOW IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)
AREA IN SQUARE MILES (SQUARE KILOMETERS)

OPERATION	STATION	AREA	PLAN	RATIO 1	RATIO 2	RATIO 3	RATIO 4	RATIO 5
				.5	0.50	0.30	0.20	0.10
HYDROGRAPH AT	SCOBA	13.0	1	102.	729.	5461.	3691.	1820.
		(26.74)		(2.75)	(20.65)	(154.65)	(104.51)	(51.55)
ROUTED TO	ADOBE	13.0	1	102.	729.	5447.	3615.	1814.
		(26.74)		(2.75)	(20.65)	(154.27)	(102.36)	(51.38)
ROUTED TO	MOUSE	13.0	1	102.	721.	5399.	3678.	1910.
		(26.74)		(2.75)	(20.43)	(152.92)	(104.14)	(54.07)
ROUTED TO	OUTLET	13.0	1	5102.	4701.	3516.	2398.	1193.
		(26.74)		(144.49)	(133.13)	(99.59)	(67.91)	(33.79)

Insignificant

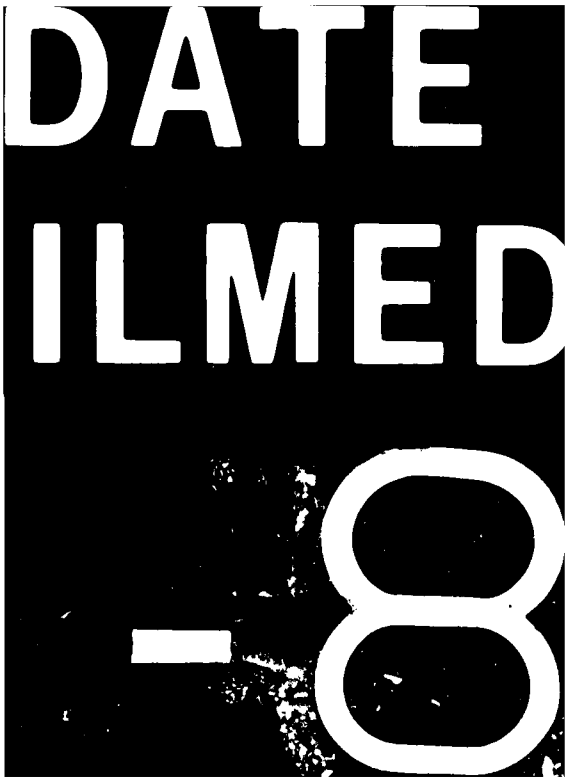
SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
	ELEVATION	6.50	6.50	10.00
	STORAGE	76.	56.	140.
	OUTFLOW	0.	0.	1513.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
0.50	11.64	1.64	264.	9113.	21.00	44.00	0.00
0.40	11.55	1.55	234.	7211.	18.00	44.00	0.00
0.30	11.04	1.04	210.	5439.	14.00	44.00	0.00
0.20	10.69	0.69	175.	3579.	11.00	44.00	0.00
0.10	10.12	0.12	143.	1910.	4.00	44.00	0.00

PLAN 1 STATION REACHA

RATIO	MAXIMUM FLOW,CFS	MAXIMUM STAGE,FT	TIME HOURS
0.50	5962.	21.6	48.00
0.40	4751.	18.6	48.00
0.30	3536.	15.7	48.00
0.20	2343.	12.7	48.00
0.10	1143.	9.8	48.00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